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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,351	07/17/2001	Steven Pedersen	4320-350	2663

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EXAMINER

FORTUNA, ANA M

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 02/19/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

AS-6

Office Action Summary

Application No.
09/889,351

Applicant(s)
Arnold et al

Examiner
Ana Fortuna

Art Unit
1723



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Nov 15, 2000
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-32 is/are pending in the application.
- 4a) Of the above, claim(s) 27-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 3 6) ☐ Other:

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DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CAR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 21-26, drawn to a filtering reactor.

Group II, claim(s) 27-32, drawn to a process for filtering water.

2. The inventions listed as Groups II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: groupII includes the process limitations directed to “permeating while adding water to the reactor”, “providing feed from bellow the modules”, “deconcentration step”, this features are not part of the apparatus structure of group I..

3. During a telephone conversation with Scott Pundsack on 2/4/03 a provisional election was made with traverse to prosecute the invention of group I, claim 21-26. Affirmation of this

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election must be made by applicant in replying to this Office action. Claims 27-32 are withdrawn from further consideration by the examiner, 37 CAR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CAR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CAR 1.48(b) and by the fee required under 37 CAR 1.17(I).

Claim Rejections - 35 U.S.C. § 112

5. Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 is incomplete. In new claim 21, step f) does not includes a period (➤) at the end. It is noted that the original claim directed to the reactor (claim 10) further includes and additional structure directed to “an aerator below the one or more modules.”, which was apparently left out at the end of end of the new claim 21. For examination purpose the reactor of claim 21 will be considered as having the limitations a) to f).

Claim Rejections - 35 U.S.C. § 103

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 21, 22, 25, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zha et al (6,156,200)(hereinafter '200). Reference '200 discloses a system including hollow fiber membrane bundles immersed in a tank containing a liquid to be filtered, and means for removing permeate by suction, and inlet to the feed tank, and a retentate outlet or drain disposed at the bottom, means for cleaning the membrane by backwashing with permeate is also disclosed (Figure 5, elements 5, column 4, lines 50-65, column 6, lines 38-65). Reference '200 further teaches using other alternative methods for removing accumulated solids removal, e.g. using an overflow at the top of the tank, and pumping the feed at the base of the tank (column 3, lines 39-49). Reference '200 fails to disclose the membrane surface area. A very tightly packed module, e.g. containing 11,000 fibers or microfiltration membranes is disclosed (column 2, lines (1-11, column 6, lines 33-37). It would have been obvious to one skilled in the art at the time the invention was made to adapt the membrane system of reference '200, with multiplicity of modules in order to reach a predetermined membrane surface area in the tank, e.g. adding multiple modules for cumulative purpose of producing larger amount of permeate, larger retentate removal it would have been expected by one skilled in the art at the time the invention was made, increasing surface area to meet a predetermined membrane density within the module, as required by the tank

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volume, or the value of liquid to be treated by the membranes, it would have been also obvious to one skilled in the art at the time the invention was made.

8. Claims 23, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zha et al (6,156,200) as applied to claims 21, 22, 25, and 26 above, and further in view of Miyashita et al (6,511,602 B1), Cote et al (5,248, 424) or JP 11165200. Reference '200 teaches the hollow fiber membrane "preferably" disposed vertically, however disposing hollow fiber modules within a tank containing a fluid to be treated by suction is conventional in the art. Reference '424 teaches the membranes immersed, and covering more than 90 % of the tank width, (9-10, abstract). '424 further discloses the hollow fiber membranes having a surface area in the range of 1 to 1000 meters square (column 10, last paragraph). It would have been obvious to one skilled in the art at the time the invention was made to have an immersed membrane having the membrane surface area and density within the tank, and further provided with the inlets and outlets for the retentate disposed as disclosed in reference '200. Reference '602 further discloses a hollow fiber membrane disposed horizontally within a tank, and the means for collecting permeate from the module, a packing density or 500 m²/m³ is suggested (abstract, column 6, lines 30-39). It would have been obvious to one skilled in the art at the time the invention was made to have an horizontal membrane arrangement in a tank or vessel having the additional inlet and outlets disclosed in reference '200, packed with the membrane surface area of membrane as claimed, e.g. 500 meter square of membrane, for a volume of one cubic meter, as suggested in reference '602. The JP ('5200) reference is cumulative as teaching horizontal membrane arrangement and solid

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discharge at the top for recirculation purpose (abstract). The headers and impervious plates are disclosed in reference '602 (Fig. 3).

9. Additionally cited references are considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana Fortuna whose telephone number is (703) 308-3857. The examiner can normally be reached on Monday-Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached on (703) 308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for regular responses, and (703)872-9311 for after finals.

Ana Fortuna

February 07, 2003



ANA FORTUNA
PRIMARY EXAMINER